CLAIMS

WE CLAIM:
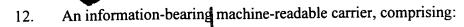
1.   A bar code symbology, comprising: a set of symbols including characters having patterns of bars and spaces, each character spanning a distance of m module widths and being represented by n bars and p interleaved spaces, the largest single bar or space being limited to k modules in width, each symbol having a human recognizable graphic element provided among the patterns of bars and spaces, at least a portion of the graphic element being machine readable and recognizable by a decoder as a portion of a respective symbol.

2.   The symbology as defined in claim 1, wherein the graphic element is a fixed width pattern of bars and spaces, with bars of different height.

3.   The symbology as defined in claim 1, wherein the graphic element uses fixed ratios of bar/space combinations.

4.   The symbology as defined in claim 1, wherein the graphic element includes an area of white space used by a decode algorithm.

5.   The symbology as defined in claim 4, wherein the area of white space has a fixed width.

6.   The symbology as defined in claim 4, further comprising a predetermined start pattern and a predetermined stop pattern.

7.   The symbology as defined in claim 1, wherein n is equal to p.

8.   The symbology as defined in claim 7, wherein the largest single bar or space pattern is limited to four modules in width.

9.   The symbology as defined in claim 8, wherein n is equal to three, and each character spans a distance of 11 modules.

10.   The symbology as defined in claim 6, wherein the symbology excludes from valid patterns a pair of patterns that Code 128 uses as a stop pattern.

11.   The symbology as defined in claim 10, wherein the symbology excludes from valid patterns three Code 128 start patterns except for check characters adjacent the predetermined stop pattern.

12.   An information-bearing machine-readable carrier, comprising:

a substrate; and

a symbol having characters and patterns of bars and spaces on the substrate, each character spanning a distance of m module widths and being represented by n bars and p interleaved spaces, the largest single bar or space in a character being limited to k modules in width, the symbol having a predetermined start pattern and a human recognizable graphic element provided among the patterns of bars and spaces, at least a portion of the graphic element being machine readable and recognizable by a decoder as a portion of the symbol.

13.   An apparatus, comprising:

an imager for obtaining image data of a target in an image field, the target including a symbol having characters and patterns of bars and spaces, each character spanning a distance of m module widths and being represented by n bars and p interleaved spaces, the largest single bar or space in a character being limited to k modules in width, the symbol having a predetermined start pattern, a predetermined stop pattern, and a human recognizable graphic element provided among the patterns of bars and spaces, at least a portion of the graphic element being machine readable; and

a decoder for recognizing the portion of the graphic element as a portion of the symbol, and for processing the image data to derive information contained in the symbol.

14.   An apparatus for generating a signal representative of information encoded in a machine-readable symbol, the apparatus comprising:

a)   a scanner for scanning a single row of encoded characters of the symbol with light for reflection therefrom, each character representing an item of data and being selected from a set of detectable mark/space patterns, each character spanning a distance of m module widths and being represented by n bars and p interleaved spaces, the largest single bar or space in each character being limited to k modules in width, the symbol having a human recognizable graphic element provided among the patterns of bars and spaces, at least a portion of the graphic element being machine readable;

b)   a detector for detecting at least a portion of light reflected from the

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symbol, and for generating an electrical signal indicative of the detected light; and

c) a decoder for recognizing from the electrical signal the portion of the graphic element as a portion of the symbol, and for decoding the electrical signal to obtain a plurality of corresponding data values representative of the information contained in the symbol.

15. A method of decoding a bar code symbology that stores computer-executable instructions on a computer-readable medium, comprising the steps of:

acquiring data from an electro-optical scan of a bar code symbol having said symbology by scanning a single row of encoded characters of the symbol with light for reflection therefrom, each character representing an item of data and being selected from a set of detectable mark/space patterns, each character spanning a distance of m module widths and being represented by n bars and p interleaved spaces, the largest single bar or space in each character being limited to k modules in width, the symbol having a human recognizable graphic element provided among the patterns of bars and spaces, at least a portion of the graphic element being machine readable; and

decoding the scanned characters according to a symbology definition by recognizing the portion of the graphic element as a portion of the symbol.

16. An apparatus, comprising:

means for producing a representation of a symbol having characters formed from patterns of bars and spaces, each character spanning a distance of m module widths and being represented by n bars and p interleaved spaces, the largest single bar or space in each character being limited to k modules in width, the symbol having a predetermined start pattern, a predetermined stop pattern, and a human recognizable graphic element provided among the patterns of bars and spaces, at least a portion of the graphic element being machine readable and recognizable by a decoder as a portion of the symbol; and

means for printing the representation on a substrate.